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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,578	10/07/2003	Tze-Liang Lee	TS01-787	5266
42717	7590	01/25/2005	EXAMINER	
HAYNES AND BOONE, LLP 901 MAIN STREET, SUITE 3100 DALLAS, TX 75202			TRINH, HOA B	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/680,578

Applicant(s)

LEE ET AL.

Examiner

Vikki H. Trinh

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 25-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) ☐ Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>0105</u> | 6) ☐ Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-24, in the reply filed on November 08, 2005, is acknowledged. The traversal is on the ground(s) that the embodiments are patentably distinct. This is not found persuasive because the restriction requirement involves two distinct categories of claims; one directs to a device and the other directs to a method of making, as discussed in the previous Office Action.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 25-48 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Group II, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on November 08, 2005.

Claim Objections

3. Claim 7 is objected to because of the following informalities: line 4 of claim 7, the phrase "n-fold clipped corner" is vague. Applicant is advised to clearly define the claimed subject matter. Also, does applicant mean to state that the metallic features or the dielectric layers that are formed in an n-fold? Appropriate correction is required.

4. Claims 13 and 22 are objected to because of the following informalities: line 5 of claim 13, the terms "no CMP" denotes a negative connotation. Applicant is advised to positively claim the subject matter. Appropriate correction is required.

5. Claims 14 and 23-24 are objected to because of the following informalities: claims 14 and 23-24 are directed to a device claim. However, the body of each of the claims includes a

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method step which renders the claims ambiguous. Nonetheless, the method step has been considered but they are not structurally distinguished over the cited prior art. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1- 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin et al. (6,165,886) (hereinafter Lin)

As to claim 1, Lin discloses a structure for corners of metallic features of semiconductor integrating circuits, comprising corner angles of all corners of metallic features 1 (fig. 1) , imbedded in dielectric layers 2 (fig. 1), which are greater than 90 degrees.

As to claims 2, 15, 17, the dielectric layer 2 (fig. 1) is composed of materials that are included in the set of silicon oxide and silicon nitride (col. 4, line 40).

As to claims 3, 9, 18, the dielectric layer 2 (fig. 1) is a composite of dielectric layers (col. 4, line 40).

Regarding to claims 4, 10, 19, 23, the dielectric layer 2 (fig. 1) is a low-K dielectric material (col. 4, line 40).

Regarding to claims 5, 11, 20, the metallic feature 1 (fig. 1) is a composed Al (col. 4, line 41).

With respect to claims 6, 12, 21, the metallic feature is pad (fig. 1).

With respect to claims 7, 13-14, a structure comprises corners of all metallic features 1 (fig. 1), imbedded in dielectric layers 2 (fig. 1), which are formed in n-fold clipped corner configurations, with n being greater than 0 or 2, and the dielectric layer is a low-K dielectric (col. 4, line 40). Note that the examiner treats the phrase n fold clipped configuration to mean the edges of the metallic features are capable of being folded multiple times. Als, the method step has been considered but they are not structurally distinguished over the cited prior art.

As to claims 8, 24, the dielectric layer 2 (fig. 1) is composed of materials from the set: silicon oxide, silicon nitride, (col. 4, line 40).

As to claims 16, 22, the metallic features 1 (fig. 1) may be formed as a squares with m-sided regular polygon (fig. 1).

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Vikki Trinh whose telephone number is (571) 272-1719. The Examiner can normally be reached from Monday-Friday, 9:00 AM - 5:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Wael Fahmy, can be reached at (571) 272-1705. The office fax number is 703-872-9306.

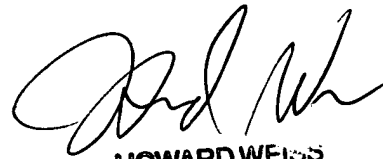
Any request for information regarding to the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Also, status information for published applications may be obtained from either Private PAIR or Public Pair. In addition, status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. If you have questions

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pertaining to the Private PAIR system, please contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Lastly, paper copies of cited U.S. patents and U.S. patent application publications will cease to be mailed to applicants with Office actions as of June 2004. Paper copies of foreign patents and non-patent literature will continue to be included with office actions. These cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy. Requests to restart a period for response due to a missing U.S. patent or patent application publications will not be granted.

Vikki Trinh,
Patent Examiner
AU 2814



HOWARD WEISS
PRIMARY EXAMINER